M10988. Reports Human tumor necro...[gi:339737] Links

LOCUS HUMTNFAA 1585 bp mRNA linear PRI 14-JAN-1995
DEFINITION Human tumor necrosis factor (TNF) mRNA.
ACCESSION M10988
VERSION M10988.1 GI:339737
KEYWORDS .
SOURCE Homo sapiens (human)
ORGANISM Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE 1 (bases 1 to 1585)
AUTHORS Wang, A.M., Creasey, A.A., Ladner, M.B., Lin, L.S., Strickler, J., Van Arsdell, J.N., Yamamoto, R. and Mark, D.F.
TITLE Molecular cloning of the complementary DNA for human tumor necrosis factor
JOURNAL Science 228 (4696), 149-154 (1985)
MEDLINE 85142190
PUBMED 3856324
COMMENT Original source text: Human cDNA to mRNA, clone pE4.
FEATURES Location/Qualifiers
source 1..1585
/organism="Homo sapiens"
/mol_type="mRNA"
/db_xref="taxon:9606"
/map="6p21.3"
gene 1..1585
/gene="TNFA"
CDS 86..787
/gene="TNFA"
/note="tumor necrosis factor"
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/translation="MSTESMIRDVELAEEALPKKTGGPQGSRRCLFLSLFSFLIVAGA
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ORIGIN Chromosome 6p21.3.

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      121 ggccgaggag gcgctcccca agaagacagg ggggccccag ggctccaggc ggtgcttgtt
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1561 gaaataaagg ttgcttagga aagaa

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BLink,
Domains,
Links

1: Q8HZD9. Reports Tumor necrosis fa...[gi:31077029]

LOCUS Q8HZD9 232 aa linear PRI 15-JUN-2004
DEFINITION Tumor necrosis factor precursor (TNF-alpha) (Tumor necrosis factor ligand superfamily member 2) (TNF-a) (Cachectin).
ACCESSION Q8HZD9
VERSION Q8HZD9 GI:31077029
DBSOURCE swissprot: locus TNFA_PANTR, accession Q8HZD9;
class: standard.
created: Oct 10, 2003.
sequence updated: Oct 10, 2003.
annotation updated: Jun 15, 2004.
xrefs: gi: 18181946, gi: 18181948, gi: 32127763, gi: 32127765, gi: 23379678, gi: 23379679
xrefs (non-sequence databases): HSSPP01375, InterProIPR006053, InterProIPR006052, InterProIPR008983, InterProIPR003636, PfamPF00229, PRINTSPR01234, ProDomPD002012, PROSITEPS00251, PROSITEPS50049
KEYWORDS Cytokine; Transmembrane; Signal-anchor; Phosphorylation.
SOURCE Pan troglodytes (chimpanzee)
ORGANISM Pan troglodytes
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
REFERENCE 1 (residues 1 to 232)
AUTHORS Kulski, J.K., Shiina, T., Anzai, T., Kohara, S. and Inoko, H.
TITLE Comparative genomic analysis of the MHC: the evolution of class I duplication blocks, diversity and complexity from shark to man
JOURNAL Immunol. Rev. 190, 95-122 (2002)
MEDLINE 22381002
PUBMED 12493009
REMARK SEQUENCE FROM N.A.
REFERENCE 2 (residues 1 to 232)
AUTHORS Anzai, T., Shiina, T., Kimura, N., Yanagiya, K., Kohara, S., Shigenari, A., Yamagata, T., Kulski, J.K., Naruse, T.K., Fujimori, Y., Fukuzumi, Y., Yamazaki, M., Tashiro, H., Iwamoto, C., Umehara, Y., Imanishi, T., Meyer, A., Ikeo, K., Gojobori, T., Bahram, S. and Inoko, H.
TITLE Comparative sequencing of human and chimpanzee MHC class I regions unveils insertions/deletions as the major path to genomic divergence
JOURNAL Proc. Natl. Acad. Sci. U.S.A. 100 (13), 7708-7713 (2003)
MEDLINE 22709134
PUBMED 12799463
REMARK SEQUENCE FROM N.A.

REFERENCE 3 (residues 1 to 232)
AUTHORS O'Huigin, C., Tichy, H. and Klein, J.
TITLE Direct Submission
JOURNAL Submitted (??-MAR-2002)
REMARK SEQUENCE OF 33-186 FROM N.A.
COMMENT ----------

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[FUNCTION] Cytokine that binds to TNFRSF1A/TNFR1 and TNFRSF1B/TNFBR. It is mainly secreted by macrophages and can induce cell death of certain tumor cell lines. It is potent pyrogen causing fever by direct action or by stimulation of interleukin 1 secretion and is implicated in the induction of cachexia, Under certain conditions it can stimulate cell proliferation and induce cell differentiation (By similarity).
[SUBUNIT] Homotrimer (By similarity).
[SUBCELLULAR LOCATION] Type II membrane protein. Also exists as an extracellular soluble form (By similarity).
[PTM] The soluble form derives from the membrane form by proteolytic processing (By similarity).
[PTM] The membrane form, but not the soluble form, is phosphorylated on serine residues. Dephosphorylation of the membrane form ocurrs by binding to soluble TNFRSF1A/TNFR1 (By similarity).
[SIMILARITY] Belongs to the tumor necrosis factor family.

FEATURES	Location/Qualifiers
source	1..232
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gene	1..232
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	/note="synonyms: TNFSF2, TNFA"
Protein	1..232
	/gene="TNF"
	/product="Tumor necrosis factor precursor"
Region	1..232
	/gene="TNF"
	/region_name="Mature chain"
	/note="Tumor necrosis factor, membrane form (By similarity)."

/evidence=experimental

Region 1..34
/gene="TNF"
/region_name="Domain"
/note="Cytoplasmic (Potential)."
/evidence=experimental

Site 2
/gene="TNF"
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/note="Phosphoserine (by CK1) (By similarity)."
/evidence=experimental

Region 35..57
/gene="TNF"
/region_name="Transmembrane region"
/note="Signal-anchor for type II membrane protein (By similarity)."
/evidence=experimental

Region 58..232
/gene="TNF"
/region_name="Domain"
/note="Extracellular (Potential)."
/evidence=experimental

Site 76..77
/gene="TNF"
/site_type="cleavage"
/note="Cleavage (by ADAM17) (By similarity)."
/evidence=experimental

Region 77..232
/gene="TNF"
/region_name="Mature chain"
/note="Tumor necrosis factor, soluble form (By similarity)."
/evidence=experimental

Region 77
/gene="TNF"
/region_name="Conflict"
/note="G -> VR (in Ref. 3)."
/evidence=experimental

Bond bond(144,176)
/gene="TNF"
/bond_type="disulfide"
/note="By similarity."
/evidence=experimental

ORIGIN

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121 nqlvvpsegl yliysqvlfk gqgcpsthvl lthtisriav syqtkvnlls aikspcqret
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1: X02910. Reports Human gene for tu...[gi:37209] Links

LOCUS HSTNFA 3634 bp DNA linear PRI 17-FEB-1997
DEFINITION Human gene for tumor necrosis factor (TNF-alpha).
ACCESSION X02910 X02159
VERSION X02910.1 GI:37209
KEYWORDS signal peptide; tumor necrosis factor.
SOURCE Homo sapiens (human)
ORGANISM Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE 1
AUTHORS Pennica, D., Nedwin, G. E., Hayflick, J. S., Seeburg, P. H., Derynck, R., Palladino, M. A., Kohr, W. J., Aggarwal, B. B. and Goeddel, D. V.
TITLE Human tumour necrosis factor: precursor structure, expression and homology to lymphotoxin
JOURNAL Nature 312 (5996), 724-729 (1984)
MEDLINE 85086244
PUBMED 6392892
REFERENCE 2 (bases 329 to 3634)
AUTHORS Shirai, T., Yamaguchi, H., Ito, H., Todd, C. W. and Wallace, R. B.
TITLE Cloning and expression in Escherichia coli of the gene for human tumour necrosis factor
JOURNAL Nature 313 (6005), 803-806 (1985)
MEDLINE 85137898
PUBMED 3883195
REFERENCE 3 (bases 1 to 3634)
AUTHORS Nedwin, G. E., Naylor, S. L., Sakaguchi, A. Y., Smith, D., Jarrett-Nedwin, J., Pennica, D., Goeddel, D. V. and Gray, P. W.
TITLE Human lymphotoxin and tumor necrosis factor genes: structure, homology and chromosomal localization
JOURNAL Nucleic Acids Res. 13 (17), 6361-6373 (1985)
MEDLINE 86016093
PUBMED 2995927
COMMENT In the cDNA sequence from ref [3] the mature protein site starts also with Val at pos 1631
Data kindly reviewed (18-FEB-1986) by A. Sakaguchi.
FEATURES Location/Qualifiers
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exon	1822..1869
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misc_feature	1822..1823
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misc_feature	1824..1869
	/note="TNF-alpha (aa 1-15, ref. 2)"
intron	1870..2170
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exon	2171..3381
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3601 ctcagggcat gggaatttcc aactctggga attc

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Science. 1985 Apr 12;228(4696):149-54.

Molecular cloning of the complementary DNA for human tumor necrosis factor.

Wang AM, Creasey AA, Ladner MB, Lin LS, Strickler J, Van Arsdell JN, Yamamoto R, Mark DF.

Tumor necrosis factor (TNF) is a soluble protein that causes damage to tumor cells but has no effect on normal cells. Human TNF was purified to apparent homogeneity as a 17.3-kilodalton protein from HL-60 leukemia cells and showed cytotoxic and cytostatic activities against various human tumor cell lines. The amino acid sequence was determined for the amino terminal end of the purified protein, and oligodeoxyribonucleotide probes were synthesized on the basis of this sequence. Complementary DNA (cDNA) encoding human TNF was cloned from induced HL-60 messenger RNA and was confirmed by hybrid-selection assay, direct expression in COS-7 cells, and nucleotide sequence analysis. The human TNF cDNA is 1585 base pairs in length and encodes a protein of 233 amino acids. The mature protein begins at residue 77, leaving a long leader sequence of 76 amino acids. Expression of high levels of human TNF in Escherichia coli was accomplished under control of the bacteriophage lambda PL promoter and gene N ribosome binding site.